<p style="color:blue">Authors' response to reviewer 2</p>

<p style="color:blue">Thank you for reviewing the manuscript "The Linear Link: Deriving Age-Specific Death Rates from Life Expectancy" submitted for publication in the MDPI journal Risks. We appreciate the time and effort that you dedicated to providing feedback on our manuscript and are grateful for the insightful comments and valuable improvements to our paper. We have incorporated most of the proposed suggestions. Those changes are highlighted within the manuscript. Please see below, in blue, for a point-by-point response to your comments and concerns.</p>

Open Review

(x) I would not like to sign my review report
( ) I would like to sign my review report
English language and style
( ) Extensive editing of English language and style required
( ) Moderate English changes required
(x) English language and style are fine/minor spell check required
( ) I don't feel qualified to judge about the English language and style

	Yes	Can be improved	Must be improved	Not applicable
Does the introduction provide sufficient background and include all relevant references?	(x)	( )	( )	( )
Is the research design appropriate?	(x)	( )	( )	( )
Are the methods adequately described?	(x)	( )	( )	( )
Are the results clearly presented?	(x)	( )	( )	( )
Are the conclusions supported by the results?	( )	(x)	( )	( )

Comments and Suggestions for Authors

The paper submitted by Pascariu et al. can be considered within the scientific area of probabilistic models used to estimate mortality rates in human populations.

The authors presented a new mathematical method, the Linear-link model, based on the observation that a linear relation between age-specific death rates and life expectancy exists. Starting from this consideration, the algorithm is developed and demonstrates that full time tables at any time can be forecasted if only one parameter is calculated, i.e. life expectancy at birth.

The paper is well written, the authors reviewed many similar methods previously published to which they compared their new analysis and they described the mathematical algorithm extensively and clearly. They tested the method on real data and they obtain a good fit between observed and expected results strongly demonstrating the assumptions the authors started from to develop the model.

The idea of the paper is very interesting and the results the Authors have achieved provide a new relational model that seems to be innovative, simpler and more parsimonious respect to the previous proposed algorithms

 Authors response: Thank you

However, in my opinion, some minor revisions has to be made in order to improve the manuscript:

Rows 38

The bibliographic list of papers cited is not completed. I suggest to insert the correct bibliographic reference and to control carefully the bibliography inserted all over the paper.

Authors response: Thank you for noticing this error has caused by the manuscript compilation procedure. Now is corrected.

Figure 4

The colours chosen to represent the estimated and observed death rates for female populations in 2016 are too similar and they do not contrast sufficiently to allow a correct view of the difference between the estimates and the real data. I suggest to change those colours similar to the ones present in figure 3.

Authors response: We are aware of the fact that visualizing the results adequately is of high importance. We took into account your suggestion and improved the contrast in our graphic.

Discussion

Most discussion is concentrated to describe applications of the model to situations that do not belong to the goal of the paper, as stated by the Authors. I suggest to reduce or eliminate that part and to concentrate the discussion only to the results presented in paper (see rows 218-245).

Authors response: Along technical aspects of the manuscript, in the discussion section we have the intention of describing the usefulness of the presented model and various positive implications that could not be captured in the main body of the text. More than that we consider that the reader will gain a better understanding of our ideas at the time of the development of the presented methodology, encouraging further exploration in the direction promoted in the article. For these reasons we decided to maintain the paragraphs mentioned above discussing the situations in which the model can be used.